

State of Nevada
Board for Financing Water Projects
Meeting Minutes

A meeting of the State of Nevada Board for Financing Water Projects was held on Friday, July 28, 2006, at 10:00 am in the 4th floor south conference room at 901 South Stewart Street, Carson City, Nevada.

Members Present:

Kurt Kramer
Bruce Scott
Stephanne Zimmerman (via conference call)
Brad Goetsch
Bob Firth

Kurt Kramer called the meeting of the State Board Financing Water Projects to order at 10:00 am.

Introductions and roll call for the record:

Bruce Scott – Resource Concepts, member of the board.
Kurt Kramer – Chairman of the board.
Brad Goetsch - Board member.
Bob Firth – Board Member.
Stephanne Zimmerman – Board Member.
Dan Dyer – Dyer Engineering Consultant.
Tom Mora – Pershing Co. Water Conservation District in Lovelock.
Mike Gottschalk – Pershing Co. Water Conservation District.
Brent Farr – Farr West Engineering.
Marcy McDermott – NDEP
Adele Basham – NDEP
Nhu Nguyen – Attorney Generals Office
Michelle Stamates – NDEP
John Nelson – Washoe County
Mike Anderson – Division of Water Resources

Kurt Kramer summarized the construction items approved by the Board for Financing Water Projects on the original grant awarded on May 3, 2006, for \$3,956,282.50 (85% of the total eligible project cost of \$4,654,450). The items approved at that time included: Engineering Design and Permitting for all Project Elements; Replacement of the Old Channel / Union Canals Diversion Structure; Upper and Lower Pitt-Taylor Dam Stability Studies; Installation of a Back-up Structure at the Humboldt Plug; Replacement of Upper and Lower Pitt-Taylor Dam Control Structures; Replacement of Anker Pond; and Installation of Slide Gates on Pitt (Thacker) and Rogers Dams. The PCWCD had not,

yet, started any of the project elements due to the very high water flows on the Humboldt River. When the board originally considered this project, the Rogers Dam had not failed and only appeared to require five new slide gates.

Background (A written summary was provided at the meeting)

According to the State Engineer's Dam Safety Office, the failure of the Rogers Dam occurred on Tuesday, July 18th, 2006, as a result of the very high flow rate (due to high run-off flow releases from the Rye Patch Dam) in the Humboldt River that undermined the concrete control section of the dam making it useless. The concrete portion of the dam was completely undercut by four to five feet with the entire flow of the river flowing under it, unimpeded. The undercutting had progressed laterally to the limits of the wing-walls at either end of the control structure, leaving large sink-holes in the embankments at those points.

The downstream spillway apron collapsed in the middle blocking the flow of water beneath the structure and causing the accelerated lateral erosion at the foundation. A displaced piece of corrugated metal could still be observed at the left wing-wall. Presumably this was installed to cut-off seeps around the control structure or to arrest erosion at the toe of the wing-wall. This may have been a contributing factor to the failure. No water was being diverted to ranches downstream.

No one was injured and no property damage was reported. No damage to downstream facilities was observed due to the dam failure which was consistent with the "low" hazard rating assigned to the structure.

The reservoir that backs up behind the Rogers Dam is diverted into the Union-Rogers Canal which provides water to 60% of the ranches in the valley. Severe economic hardship would have been experienced by the farmers of the "lower valley" if deliveries to the Union-Rogers Canal could not be reestablished. The PCWCD estimated that approximately 20,000 acres were affected, representing more than half of the land served by the PCWCD. The PCWCD requested emergency funding assistance through a change in project scope on their existing grant from the Board.

The Rogers Dam could not be "patched" for temporary use. The State Engineer's Dam Safety Office, Dyer Engineering, Farr-West Engineering, and the PCWCD worked together to devise a cofferdam design that would provide the quickest and least expensive way to get water flowing into the Union-Rogers Canal. The cofferdam was constructed upstream of the failed Rogers Dam. The PCWCD obtained all heavy equipment available in the region to provide as much in-kind work possible on this temporary structure. Ranchers in the District also volunteered their time and equipment. The District hired West Coast Construction to handle the majority of the construction. The Rogers Dam will be properly investigated and repaired/replaced as the cofferdam cannot be left in place as a long term stand-alone structure on the river. Many of the project elements are currently on hold due to the failure of the Rogers Dam.

Kurt Kramer: We've got an approved project and we have an emergency. We need to review and possibly approve or disapprove the reallocation of funds from the original agreement to take care of the cofferdam and any other structures (e.g., the Old Channel and Union Canal) that have match funding for a limited time frame. If we all agree upon it, we need to funnel our input and approvals to the Rogers Dam. Know that there may be similar issues with other structures.

Bruce Scott: The Rodger's Dam serves the bulk of the irrigation users in the district but what percentage of your total water deliveries would come through Rodger's Dam roughly?

Tom Mora: Approximately 60% of the users get their water diverted at this dam. Indirectly it affects them all.

Bruce Scott: I'm comfortable with looking at some reallocation because obviously your priorities have changed. My concern would be to make sure that anything that's done to mitigate this emergency is done in a well designed, well grounded, and well constructed way and that we don't end up with an emergency dam that really has to be replaced in five years because it isn't doing its job. I'm concerned about making sure that we know a little more than we currently know about why the dam failed and what we would do differently in a new dam so that we build something that will last instead of just being a short term fix. My final question would be, can you give us any insights as to the issues related to both the cause of the failure and how the approach on the replacement would be undertaken?

Kurt Kramer: The failure of this dam was not expected. You have to get water to the agricultural users and then you have to build a permanent structure that will support what the geology and hydrology is because obviously those structures were never intended to take this type of thing. It can't be temporary.

Bob Firth: Could I get a clarification? I understood the reallocation to be just for the emergency temporary dam. This request is for four or five hundred thousand dollars. Are we talking about these funds being used for the new dam?

Kurt Kramer: At this particular point, I don't know that we are not talking about that or we are talking about that.

Bob Firth: The first priority is to get the water back into that canal so the farmers can get their water. After that then the old dam can be inspected to figure out what happened to it. Then, at some point, you are going to have to re-design a new dam. I think that what Bruce is getting at is to build this temporary dam now and at what point in the future would we be looking at building a new dam? Are we two, three years away?

Brent Farr: Mike Anderson's letter says he wants a report on this structure, this temporary structure, thirty days after it is done. Then he says the report shall be accompanied by a preliminary plan for rehabilitating the permanent diversion. As soon as practical, plans and specifications for re-construction of Roger's Dam shall be submitted for State Engineer's review. Then it says this temporary authorization expires upon cessation of irrigation activities or upon completion of the reconstruction of the dam. Should Rogers Dam not be completed by March 1st, 2007, provisions must be made for potential high run-off flow releases from Rye Patch Dam.

Bob Firth: I am as curious as Bruce is to know what happened to the existing dam, and I am also concerned with how this temporary dam is being constructed. I think I agree with him, I don't think we should put any old thing in there and then have it fail on us in a short period of time, too. I don't know if your engineers have any typical cross sections of what you're building now, what it looks like, what it's made out of, and where the material is coming from?

Dan Dyer: We have a cross section that approximately represents what was done. Although we were asked to make this after much of the work had been done. There is a keyway approximately under the center of the dam, slightly forward of the center line and about twenty feet wide. That keyway is constructed of amended gravel with a clay core which was amended on site using the gravel onsite and a clay source they mixed on site. They're coming up at a sloping angle to where that core is about eight feet wide at the top – maybe slightly less – because they are so short of the clay. We are stretching it just as far as we can possibly stretch it. The height to the top of the dam is going to be approximately twenty feet from that foundation layer and a little over thirty feet from the deepest point on the valance. There is no bedrock.

PCWCD: The material for the temporary dam is being brought in from twelve to fourteen miles away. It's a material that's been used on various other structures in the area, and it has a tremendous compaction. The pit run looks like it's been screened as far as there is no great big, heavy rock in it and with a certain amount of clay, it just binds and compacts well. We have also accumulated a lot of rip-rap over various construction projects. The temporary dam is right in front of the failed Rogers Dam. I've got a number of pictures.

Brad Goetsch: What was the age of Roger's Dam?

PCWCD: It was built in the early 40s.

Brad Goetsch: The costs shown are just the cost for the temporary dam.

Kurt Kramer: I recommend that the dollars originally awarded on this project be held, with the exception of those project elements that have other short term funding.

Brad Goetsch: If all of the structures are about the same age we may have similar problems in other areas. The system needs to be looked at.

Bruce Scott: The action today needs to consider the emergency as well as the investigation into the failure and preliminary engineering for a new dam. We're talking about reallocating funds that you already have. In the big picture, these funds come from other project elements at this time. We need to determine what it will take to replace the Rogers Dam

Brad Goetsch: Were there other sources of federal and state funds.

Brent Farr: Currently we are just following up with the state and federal offices. Perhaps the Corps of Engineers will be able to come through with funding.

Kurt Kramer: At this point, we are the emergency bank. If other funding comes through, this grant should be reimbursed.

Bruce Scott: We're helping to bridge this issue. We've funded different project elements. This is simply an emergency accommodation that leaves a void. Hopefully, there is federal money to fund this void. If there is no federal money, we may have to look at the big picture in the future. The State is stepping in, in the short term, but it does have an impact on an approved project that has a lot of other elements that are important in the larger picture.

Bob Firth: Do we need to designate what project elements will not get done. I assume that there must have been some sort of priority provided at the time the original funds were allocated, and if we spend \$400,000 to \$500,000, there may be projects in here that are not going to have funding. It is up to the PCWCD to tell us which projects are most important and which can be deferred.

Michelle Stamates: There are certain areas where they cannot work at this time due to the volume of water in the system. They also have some constraints with some BOR match money that is allocated strictly to the Old Channel and Union Canal and must be spent in the next year.

Kurt Kramer: Depending on what we see in the geology and hydrology with the fix for the Rogers Dam, it might make sense to do some drilling around other structures to make sure that they don't have this same or similar problems.

Mike Anderson: State Engineer's Office requested geotechnical studies of the Pitt Taylor Reservoirs. These could be deferred but should not be eliminated. The State Engineer's inspections are limited to the structures put on their inventory. They do not usually inspect run-of-river dams. They recently inspected the Thacker (Pitt-Taylor Diversion) Dam. The Rogers Dam is not a permitted structure, but any replacement would need to go through the State Engineer's review. Inspections of other structures in this system are limited to what may be observed from the dam at the time of inspection. We do not have subsurface inspection/exploration devices. At last inspection, the Rogers Dam showed no indication of seeping except what would be expected from earth abutments. Water

was being put into Union Canal and there was a full head against the flashboards. No unusual water was emanating from the apron or around the wingwalls. The State Engineer's Office has statutory authority to do inspections and advise the owner of remedial actions that are necessary. We can make formal findings.

Kurt Kramer: This Board has the authority to require that certain things be done. The Board could tie funding to geotechnical studies.

PCWCD: There was core drilling done on Pitt Dam in the past. It showed poor under-support for the dam. There could be other past studies with information that could be of use in the design of new structures. Some of the project elements can be deferred.

Brad Goetsch: The original grant amount was \$3,956,282.50. Do we have a good estimate for this temporary structure?

Michelle Stamates: They do not have firm estimates on what this temporary structure is expected to cost. They are saying \$400,000 to \$500,000, but West Coast Construction has been in the channel for a number of days now at a cost of approximately \$60,000/day.

PCWCD: The contractor's bill through Thursday was at approximately \$321,600. We also have bills from equipment rentals and other commitments. There are no totals, yet.

Brent Farr: The final cost will likely be in the \$500,000 - \$600,000 range.

PCWCD: This first contractor's bill will wipe out any emergency funds the PCWCD had. We're using the best knowledge and experience for this temporary structure. The big problem is the likelihood of a large release required from Rye Patch in the spring. Water would top the temporary structure. The by-pass could be expanded to help with the load.

Brent Farr: There is a by-pass around the old Rogers Dam. It was partially destroyed in this event.

PCWCD: We need a permanent structure, but that will not be in by the next water year.

Bob Firth: Even with a crash program, there would have to be funds available for a new dam. The cost of a new permanent structure is not currently known.

Bruce Scott: Managing the reservoir will be a key to maintaining this temporary structure while a permanent structure is designed and constructed.

Kurt Kramer: Is there a possibility to widen the by-pass or put in a second by-pass?

PCWCD: This is being considered. Plans are being made to clean up the existing by-pass.

Bob Firth: Is the State Engineer putting any conditions on this temporary structure? This temporary structure does not have a spillway.

Mike Anderson: The cofferdam authorization is good until March 2007. At that time they may have to make provisions in the event they need to spill large quantities of water from Rye Patch. A new structure could be moved through the permitting process fairly quickly. Currently we do not know if the existing structure can be repaired.

Bob Firth: They should have funds for the temporary structure, but they also need money for the preliminary engineering.

Kurt Kramer: The Board needs to get out and see this structure. The Board is not giving the grantee cart blanc on these funds. The project is frozen as far as doing other elements. We want to give them funds to take care of this emergency and then have them come back and tell us how this will affect the rest of this project.

Bob Firth: They need give us preliminary engineering cost, permanent structure costs, and a time frame.

Brad Goetsch: To summarize: we want to approve reallocation for the temporary dam and for preliminary engineering and geotech for a new permanent structure; the District will use all available emergency funds of their own as match and will continue to seek funding from other sources; there needs to be geotech on other structures in the system or if there is information from past studies that information needs to be located; also there needs to be information on an improved by-pass around a new permanent structure for future high water years.

PCWCD: A by-pass situation will create a place for silt accumulation. We aren't sure we can handle another high water year without losing the emergency dam. We got a lot of washing action on the backside of the old Rogers Dam due to the high flows from the release at Rye Patch. The clay layer that was eroded in this event may be the only clay in the area. The Rogers Dam sat on redwood pilings.

Releases started in December 2005. It was working well until the late rains came. Managing the timing for release is a difficult task. The system is quite flat and you can see the surges coming for a long time. You don't get a wall of water. It comes at you for a long time and then continues for a long time.

Kurt Kramer: We'd hope that there are newer engineering techniques.

PCWCD: The new dam must have more capacity and better control measures. The Rogers Dam did fail in the 50s during the earthquakes – the south bank failed. Capacity of the canal is 400 – 500 cfs. It is on demand.

Bruch Scott: We believe we are investing in the future for the benefit of the state. It's important that we do a first class job with the infrastructure we install. We expect a good

long term project for the Humboldt System. We want to spend the State's money wisely, but we want structures that will last.

PCWCD: We don't know why the Rogers Dam failed, but we did check the structure on the Friday before and there was no evidence of problems. The structure failed suddenly.

Dan Dyer: We know the structure failed in '53 due to an earthquake due to consolidation of materials. They put in sheet-piling but not all the way across and the failure occurred where there was no sheet-piling.

Bruce Scott: We would be paying 85% of claims. There may be some adjustments later on given other funding that may be forthcoming. We'll need to freeze certain elements and those would not be payable now.

Brent Farr: The Old Channel & Union Canal is currently in design. No other structural design has begun.

The Board deliberated the total that they should assign to this emergency and preliminary engineering for a permanent structure. The Board wants to be kept informed and be given an update at the next meeting. This is money being reallocated out of what has already been granted for the PCWCD's project.

Brad Goetsch: Motion is made that the Board reallocate already approved project funding for the construction and costs involved in the emergency temporary dam and for study and construction of an improved by-pass; also for preliminary engineering and geotech work to begin moving forward on a new permanent structure; we recommend that the fund not exceed \$1,000,000 total and that the PCWCD come back to the Board with planning and information; be contingent on the District expending their emergency funds and the District continue to pursue other state and federal funding; the project that was previously funded needs to be reviewed by the Board in the future to look at the integrity of all of the structures and geotech work for all of the structures.

Bruce Scott: Second. And adds that the only project that would move forward would be Old Channel and Union Canal as it has match funding from the BOR and is time sensitive. The rest of the project is frozen until they come back to the board.

Kurt Kramer: Any other funds that they apply for have to be turned down in writing; written documentation or evidence that they are turned down for any requested funding.

Stephanne Zimmerman: The grant amount would be \$850,000 for this effort (85% of \$1,000,000).

Bruce Scott: Some of the match to the project could be in-kind services as the District is using their own people and equipment.

The motion carried with all members (Kurt Kramer, Brad Goetsch, Bruce Scott, Stephanie Zimmerman, Bob Firth) approving it.

Bruce Scott: The condition that the geotech be completed on the Pitt Taylors as required by the State Engineer's Office remains although this part of the project has been pushed out to some time in the future.

The Board would like to get out to see more parts of this project including this emergency structure so that they feel comfortable with what is going on.

Water rights for South Fork have no storage for flood waters. The water master is an officer of the court. This may require court orders. Every storage facility upstream of Rye Patch is as full as they've been in the history of Nevada. The big water actually came out of the North Fork and Mary's Rivers. The PCWCD has had a very good relationship with the River Master.

If there had not been a grant already with this group, would we have been able to consider this request. The AGs office felt that this would still fall under the statutes for this program. It may have needed to be put on a fast track. It appears that the only place to go to get funding for water issue is this Board.

Motion to adjourn was made, seconded, and approved.